

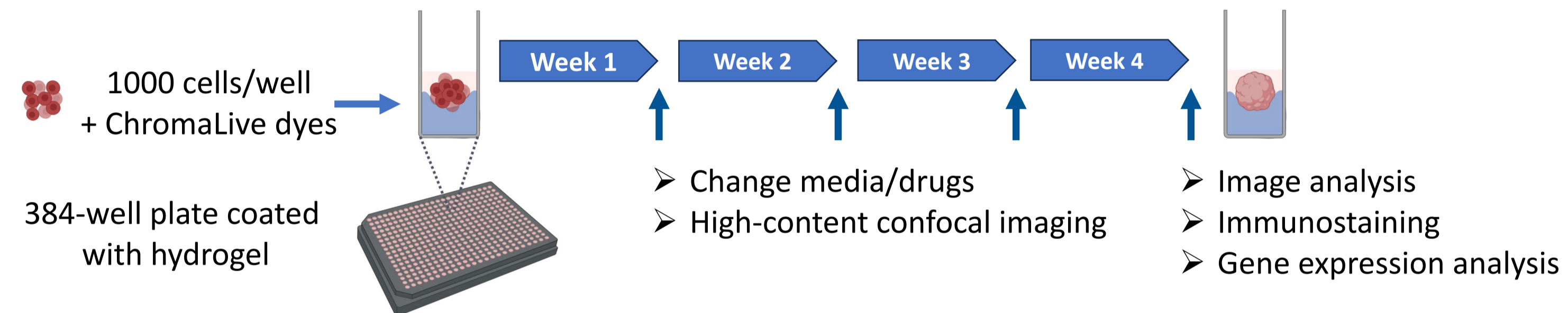
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Patient-Derived Organoids

Methodology

PDO establishment



Results

PDO tissue site

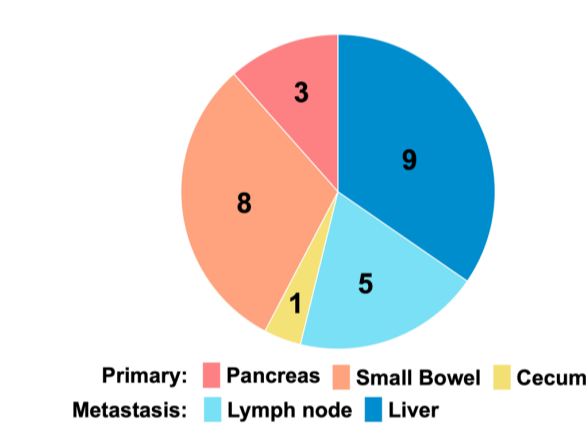


Figure 1. Surgical tissue samples used for derivation of PDOs.

PDO establishment with hydrogel

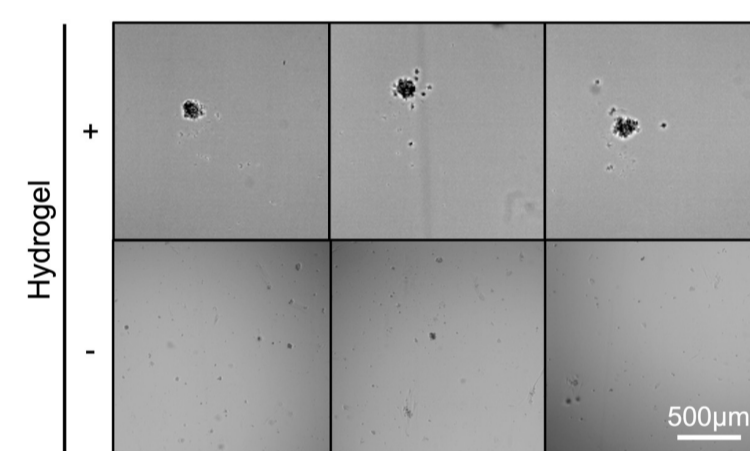


Figure 2. Hydrogel coating is essential for successful PDO establishment.

PDO imaging

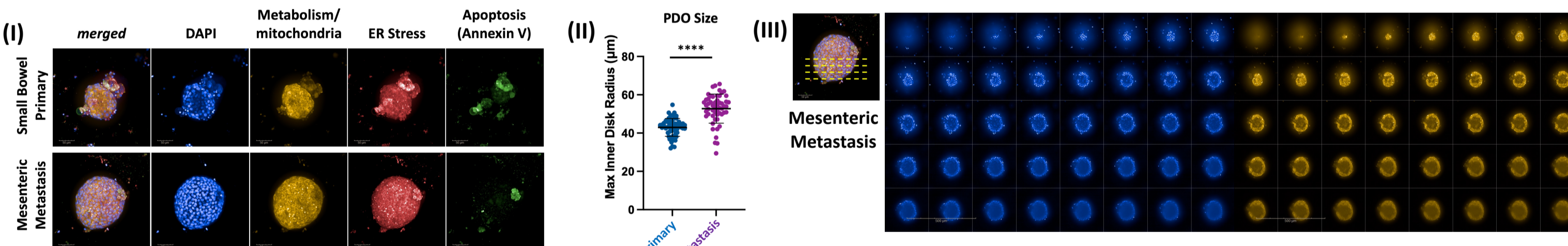


Figure 3. PDOs imaged with live cell dyes and DAPI at end point. (I) 2D imaging. (II) Quantification of PDO size. (III) Z-stack imaging.

PDO drug treatment

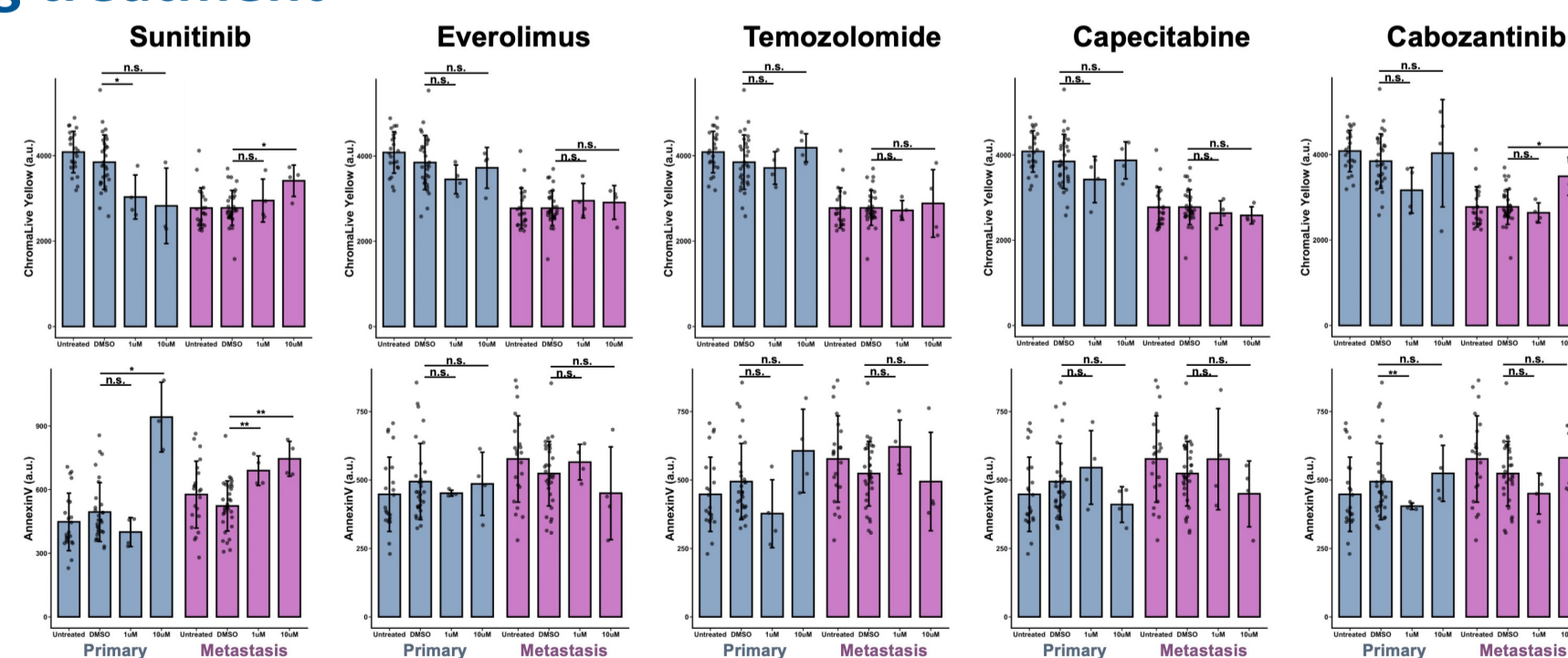


Figure 4. PDOs established from a G1 small bowel primary tumor and matched lymph node metastasis were treated with sunitinib, everolimus, temozolomide, capecitabine, and cabozantinib.

Conclusions

- We have developed a high-throughput method of PDO establishment from fresh surgical tissues.
- Non-toxic liver cell dyes (Cottet *et al.*, 2023, *SLAS Discov*) are useful for PDO imaging.
- PDXovos maintain patient tumour histology.

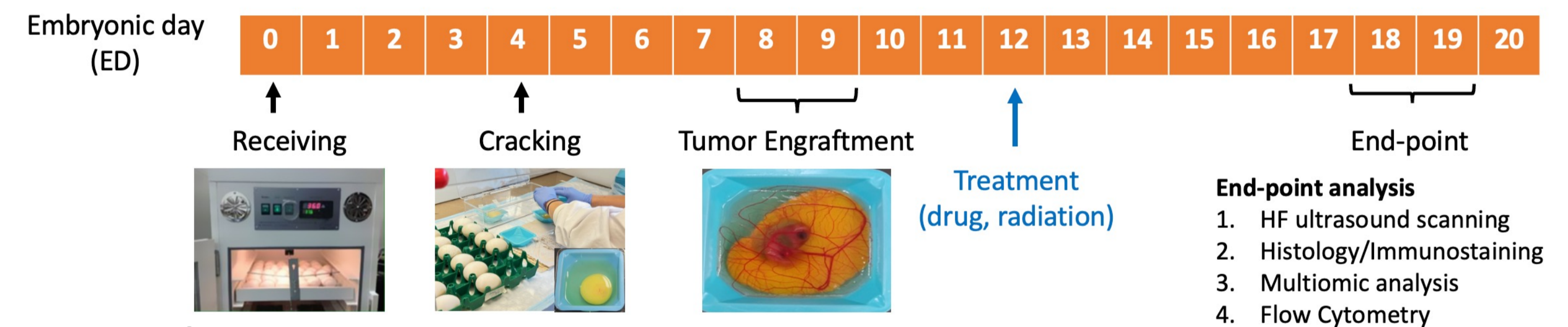
Future Directions

- PDO drug screening with FDA approved drug library.
- Identification of drugs that enhance the efficacy of PRRT treatment.
- Drug screening in PDXovos.

Patient-Derived Xenografts *ex-ovo*

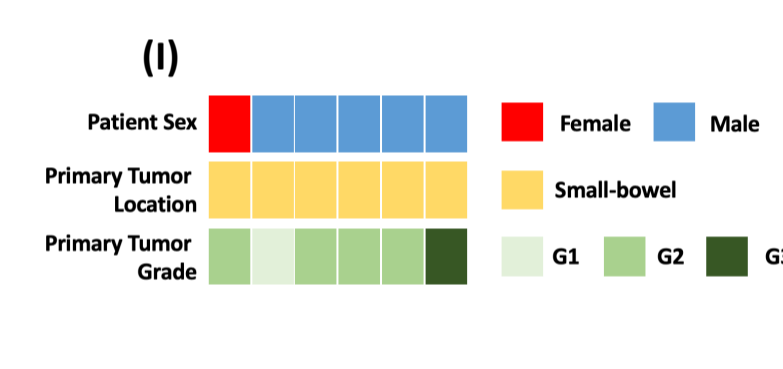
Methodology

PDXovo establishment

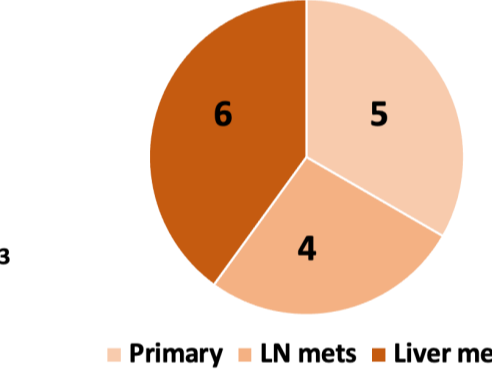


Results

PDXovo "take rate"



(II) Surgical Tissue Samples



(III) PDXovos

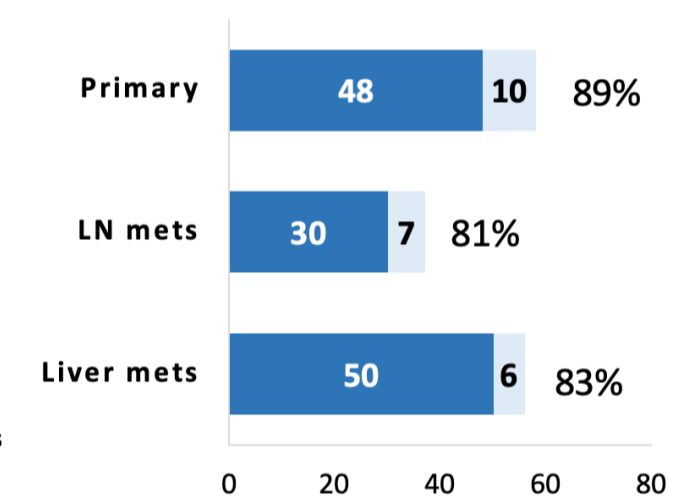
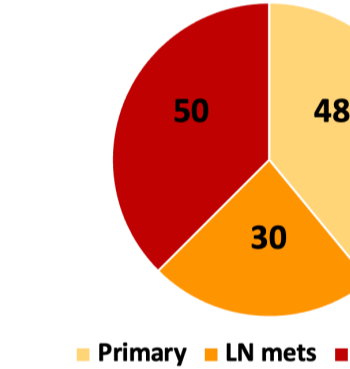


Figure 1. (I) Patient information and NET characteristics (II) Surgical tissue samples used for derivation of PDXovos. (III) Established PDXovos from various surgical specimens (IV) PDXovo "take rate".

PDXovo volume and vascularity

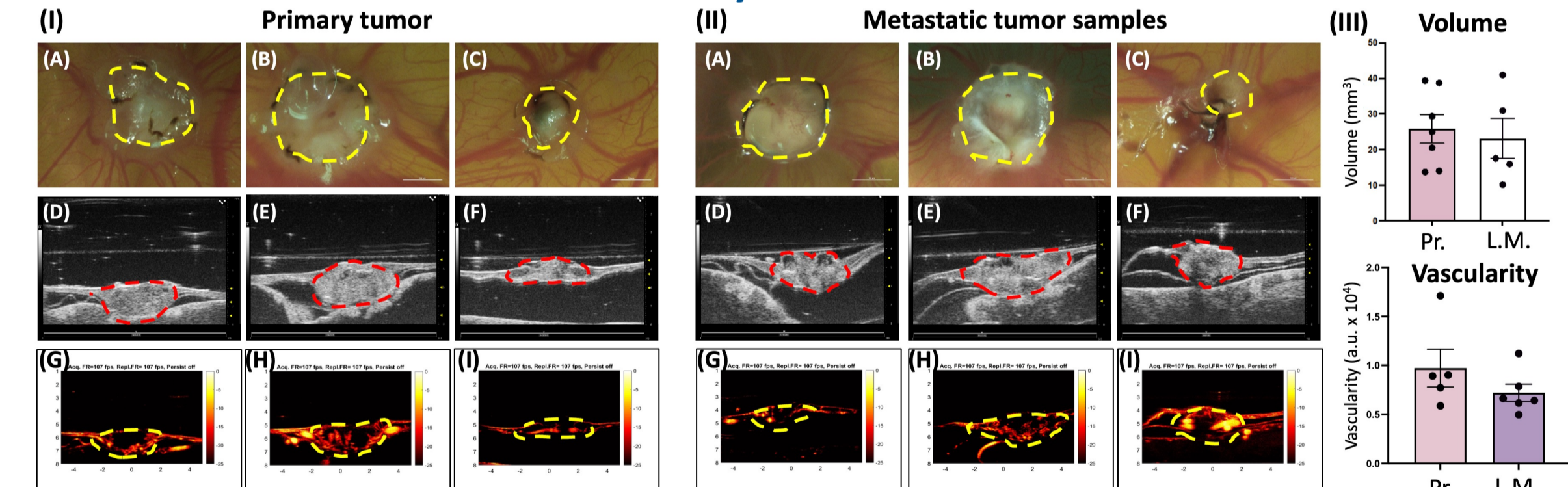


Figure 2. PDXovos were derived after engrafting fresh tumor samples from neuroendocrine tumor patients on ex-ovo cultured chick embryos. (I) Primary tumors; (II) Metastatic tumors. (A-C) Bright-field images; (D-F) ultrasonographic images of tumor volume; (G-I) US images of tumor vascularity. (III) Quantification of tumor volume and vascularity.

PDXovo histology

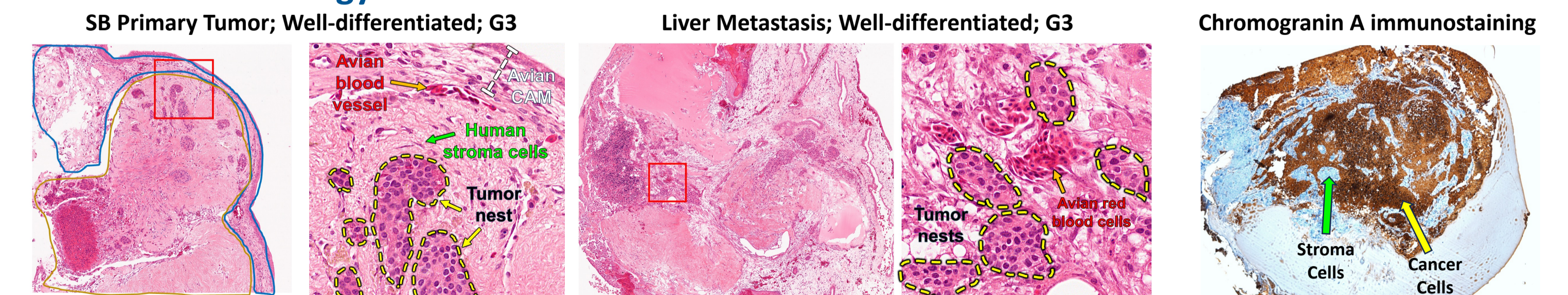


Figure 3. H&E and Chromogranin A immunostaining of PDXovos.

Acknowledgments